Supercomputers: NEC Earth-Simulator is No1, AMD Opteron™ Processor-Based Installations See a Sevenfold Increase In Place

June 21 2004

The 23rd edition of the TOP500 list of the world's fastest supercomputers was released today at the International Supercomputer Conference in Heidelberg, Germany.
The Earth Simulator supercomputer, built by NEC and installed in 2002 at the Earth Simulator Center in Yokohama, Japan, with its Linpack benchmark performance of 35.86 Tflop/s ('teraflops' or trillions of calculations per second), retains the No. 1 position. However, the other positions in the top 10 showed significant changes, including the first-ever Chinese entry in the top 10.

The TOP500 list is published twice yearly. It is based on the Linpack benchmark, which measures a computer's floating-point rate of executing linear equations and is expressed in Gigaflops (Gflop/s) or billions of floating point operations per second.

The number 10 supercomputer, built by Dawning and in service at Shanghai Supercomputer Center, comes in as the highest AMD Opteron processor-based system on the TOP500, operating at a maximal Linpac performance rate of 8,061 Gflop/s with a theoretical peak performance of 11,264 Gflop/s. Also appearing in the top 20 are a Los Alamos National Laboratory installation in the United States built by Linux Networx at number 11 and a system at the Grid Technology Research Center in Japan, built by IBM, at number 19.

“The architectural design of the AMD Opteron processor makes it a popular choice in a scientific computing environment, especially as the trend toward clustering grows,” said Jack Dongarra, Distinguished Professor at the University of Tennessee and author of the Linpack benchmark. “AMD Opteron processors feature fast data throughput for computationally intensive applications.”

However, a total of 287 supercomputer systems are now using Intel processors. Six months ago, there were 189 Intel-based systems on the list and one year ago only 119. The second most common processors are IBM Power processor (75 systems) ahead of HP’s PA-RISC processors (57) and AMD processors (34).

At present, IBM and Hewlett-Packard sell the bulk of systems at all performance levels of the TOP500. IBM became clear leader in this edition of the TOP500 list with 44.80 percent of the systems and 50.12 percent of installed performance. HP is second with 28 percent of the systems and 18.5 percent of total performance. No other manufacturer is able to capture more than 6 percent in any category.

More details at ww.top500.org